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**Identification of S100-A9 in Gut Secretome of Colorectal Cancer: A Pilot Malaysian Study**

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**ABSTRACT**

Colorectal cancer (CRC) is often associated with numerous genetics and epigenetics factors including the gut microbiota imbalance. Human gut microbes formed a complex community that thrives in a delicate balance among each other in order to maintain the gut homeostasis. However, due to environmental changes, this delicate balance may be disturbed and give rise to cancer. Microbes residing in the gut released large amount of bacterial proteome to the external environment, including the growing tumors. These secreted proteins or secretome may have interacted with the host and caused variety of reactions. Therefore, secretomics may provide an insight into the host-microbe relationship in CRC. The objective of this study is to profile the secretome proteins of healthy and CRC individuals by using SWATH-MS technology. Stool samples were collected, homogenized and filtered prior to protein extraction and analysis. Samples were subjected for in-gel and in-solution digestion, followed by protein identification and quantification. A total of 179 secreted proteins were identified, largely originated from the host (132 proteins) and only 47 were from the microbes. Seven of the identified proteins were differentially expressed (p<0.05) with fold change values above 2. S100-A9 was highly expressed in advanced CRC samples as compared to the healthy and increased as the disease progresses. This protein was co-identified from the distinct band observed in CRC samples on the SDS-PAGE gel. Previously, S100-A9 was reported only in tissues and serum samples of CRC. In conclusion, we have identified S100-A9 as the potential protein marker secreted from the gut possibly specific to CRC.